

WHAT IS CLAIMED IS

1. A dispensing device mountable in use atop a plurality of independently valved container containing dispensable constituents which are dispensed upon actuation of the container valves, the dispensing device comprising: a mixing chamber for mixing together the constituents dispensed from the containers to form a mixed product and for outputting the mixed product through plural outlet ports, wherein the mixing chamber has an inlet port for admitting the constituents dispensed from the containers into the mixing chamber, and an elongated tortuous flow path defined by at least one of (a) a baffle defining a spiral flow path, and (b) a baffle defining a sinuous flow path, said baffle comprising at least two baffle members which overlap over a majority of their respective lengths, said tortuous flow path having one end communicating with the inlet port and another end communicating with the plural outlet ports, the tortuous flow path being effective to thoroughly intermix the constituents during flow thereof from the inlet port through the tortuous flow path to the outlet ports; an applicator having a plurality of tines at least some of which are hollow, the hollow tines being in fluid communication with respective outlet ports of the mixing chamber for dispensing from distal ends thereof the mixed product; and an actuator for simultaneously actuating the container valves.

2. A dispensing device according to claim 1; wherein the plurality of tines comprise hollow tines in fluid communication with respective outlet ports of the mixing chamber, and solid tines coacting with the hollow tines for spreading the dispensed mixed product.

3. A dispensing device according to claim 2; wherein the hollow tines are shorter in length than the solid tines.

4. A dispensing device according to claim 1; wherein the elongated tortuous flow path has a sinuous shape.
5. A dispensing device according to claim 1; wherein the elongated tortuous flow path has a spiral shape.
6. A dispensing device according to claim 1; wherein the mixing chamber and the applicator are formed of two parts fitted together.
7. A dispensing device according to claim 6; wherein the two parts have opposed spaced-apart surfaces defining the mixing chamber.
8. A dispensing device according to claim 7; wherein the baffle extends outwardly from one of the opposed surfaces of one of the two parts and engages the other opposed surface of the other of two parts.
9. A dispensing device according to claim 8; wherein the baffle comprises a plurality of baffle members defining a sinuous flow path, whereby the constituents admitted through the inlet port undergo repeated deflection by the baffle members to effect thorough mixing of the constituents during their flow along the sinuous flow path to the outlet ports.
10. A dispensing device according to claim 8; wherein the baffle defines a spiral flow path communicating with the inlet port at the center thereof and communicating with the outlet ports at the outer end thereof, whereby the constituents admitted through the inlet port undergo thorough intermixing during the flow along the spiral flow path to the outlet ports.
11. A dispensing device according to claim 6; wherein the actuator is formed as one of the two parts.
12. A hand-held applicator for dispensing and applying a fluid product, comprising: an inlet connectable to

a source of fluid product to be dispensed; an outlet; and means defining flow passages communicating the inlet with the outlet to enable the fluid product to flow serially from the inlet through the flow passages and through outlet wherein the flow passages comprise a tortuous flow path including at least one baffle mixing station disposed in the tortuous flow path.

a 13. The applicator of claim ¹²14, further comprising a plurality of tines, at least some of which are hollow, wherein the outlet comprises one or more of said hollow tines and the flow passages communicating the inlet with the hollow tines enable the fluid product to flow serially from the inlet through the flow passages and through the hollow tines to be dispensed at distal ends of the hollow tines.

14. A hand-held applicator according to claim 13; wherein the plurality of tines comprise hollow tines and solid tines, the solid tines coacting with the hollow tines for spreading and applying the fluid product dispensed from the distal ends of the hollow tines.

15. A hand-held applicator according to claim 13; wherein the hollow tines have a length shorter than that of the solid tines.

16. A hand-held applicator according to claim 12; further comprising a base portion having the inlet connected thereto; and a comb portion having the outlet connected thereto; wherein the outlet comprises a plurality of tines, at least some of which are hollow, to enable the fluid product to flow serially from the inlet through the flow passages and through the hollow tines to be dispensed at distal ends of the hollow tines and wherein the base and comb portions have opposed spaced-apart surfaces defining therebetween the flow passages that communicate the inlet with the hollow tines.

17. A hand-held applicator according to claim 16; wherein one of the opposed surfaces of the base and comb

portions has a partition wall extending outwardly therefrom into contact with the other one of the opposed surfaces to define the flow passages.

18. A hand-held applicator according to claim 17; wherein the plurality of tines comprise hollow tines and solid tines, the solid tines coacting with the hollow tines for spreading and applying the fluid product dispensed from the distal ends of the hollow tines.

19. A hand-held applicator according to claim 18; wherein the hollow tines have a length shorter than that of the solid tines.

20. A dispensing device according to claim 12; wherein each baffle mixing station comprises an upstream baffle member and a downstream baffle member, the baffle members being staggered from one another with respect to the principal direction of flow of the constituents along the tortuous flow path.

21. A dispensing device according to claim 20; wherein one of the baffle members of each baffle mixing station is positioned in the center of the tortuous flow path so that the constituents can flow past both ends thereof.

22. A dispensing device according to claim 21; wherein the other of the baffle members of each baffle mixing station is positioned at one side of the tortuous flow path so that the constituents can flow past only one end thereof.

23. A dispensing device according to claim 12; wherein each baffle mixing station comprises an upstream baffle member positioned in the center of the tortuous flow path, and two downstream baffle members positioned at opposed sides of the tortuous flow path and defining therebetween a narrow passageway within the tortuous flow path.

24. A dispensing device according to claim 23;

CT/US 99/18738
IPEA/US 25 AUG 2000

wherein the narrow passageway is located substantially entirely behind the upstream baffle member.

25. A dispensing device according to claim 12; further including a baffle member disposed in the inlet region and positioned to create flow separation and turbulence of the constituents entering the mixing chamber from the inlet ducts.

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26. A dispensing device according to claim 12; further including an actuator for simultaneously actuating the container valves to simultaneously dispense the constituents from the containers into the respective inlet ducts.

27. A dispensing device mountable in use atop a plurality of valved containers containing dispensable constituents which are dispensed upon actuation of the container valves, the dispensing device comprising: a plurality of inlet ducts receptive of the constituents from respective ones of the containers; and a mixing chamber having an inlet region in communication with the inlet ducts for receiving therefrom the constituents, and a tortuous flow path having one end in communication with the inlet region and another end in communication with an outlet, the tortuous flow path being effective to progressively intermix the constituents during flow thereof from the inlet region through the tortuous flow path to the outlet wherein the tortuous flow path includes one or more baffle mixing stations disposed therein for creating turbulent local mixing of the constituents.

28. A dispensing device according to claim 27; wherein each baffle mixing station comprises an upstream baffle member and a downstream baffle member, the baffle members being staggered from one another with respect to the principal direction of flow of the constituents along the tortuous flow path.

29. A dispensing device according to claim 28;

wherein one of the baffle members of each baffle mixing station is positioned in the center of the tortuous flow path so that the constituents can flow past both ends thereof.

30. A dispensing device according to claim 29; wherein the other of the baffle members of each baffle mixing station is positioned at one side of the tortuous flow path so that the constituents can flow past only one end thereof.

31. A dispensing device according to claim 27; wherein each baffle mixing station comprises an upstream baffle member positioned in the center of the tortuous flow path, and two downstream baffle members positioned at opposed sides of the tortuous flow path and defining therebetween a narrow passageway within the tortuous flow path.

32. A dispensing device according to claim 31; wherein the narrow passageway is located substantially entirely behind the upstream baffle member.

33. A dispensing device according to claim 27; further including a baffle member disposed in the inlet region and positioned to create flow separation and turbulence of the constituents entering the mixing chamber from the inlet ducts.

34. A dispensing device according to claim 27; further including an actuator for simultaneously actuating the container valves to simultaneously dispense the constituents from the containers into the respective inlet ducts.

35. A dispensing device according to claim 27; wherein the mixing chamber is comprised of two complementary sections connected together to define therebetween the mixing chamber, the complementary sections each having complementary wall portions which align with and abut one another to define the tortuous flow path.

36. A dispensing device according to claim 35; wherein the complimentary sections have arm portions each

containing therein one of the inlet ducts.

37. A dispensing device according to claim 27,
further comprising:

an applicator having a plurality of tines in fluid communication with the outlet, at least one of said tines being hollow for dispensing the intermixed constituents through ends distal to the outlet.

38. A dispensing device according to claim 27,
wherein the tortuous path has a sinuous shape.

39. A dispensing device according to claim 27,
wherein the mixing chamber comprises a baffle.

40. A dispensing device according to claim 39,
wherein the baffle comprises a plurality of baffle members defining the tortuous flow path.

41. A dispensing device mountable in use atop a plurality of valved containers containing dispensable constituents which are dispensed upon actuation of the container valves, the dispensing device comprising:

an actuator for simultaneously actuating the valves of the valved containers to release the constituents of the containers;

inlet ducts receptive of the constituents of each said valved container;

a mixing chamber effective to progressively intermix the constituents, said mixing chamber being in communication with the inlet ducts for receiving the constituents therefrom, and said mixing chamber comprising:

at least one wall portion defining a sinuous flow path for said constituents,

at least one baffle mixing station comprising
at least one baffle member extending at least partially
into said sinuous flow path, and,

at least one outlet for discharging the
intermixed constituents; and

an applicator having a plurality of tines, at least
some of which are hollow, the hollow tines being in fluid
communication with the at least one outlet of the mixing
chamber for dispensing the intermixed constituents through
ends distal to the at least one outlet of the mixing chamber.

42. A dispensing device mountable in use atop a
plurality of independently valved containers containing
dispensable constituents which are dispensed upon actuation of
the container valves, the dispensing device comprising:

a mixing chamber having at least one inlet duct for
admitting the constituents dispensed from the containers, and
an elongated tortuous flow path having one end in fluid
communication with the at least one inlet duct, said tortuous
flow path defined by at least one of (a) a baffle defining a
spiral flow path, and (b) a baffle defining a sinuous flow
path, said baffle comprising at least two baffle members which
overlap over a majority of their respective lengths; and

an applicator admitting the mixed product from the
mixing chamber having at least one outlet port.

43. A dispensing device according to claim 42,
wherein the elongated tortuous flow path has a sinuous shape.

44. A dispensing device according to claim 42,
wherein the baffle defines a spiral flow path.